

WHAT IS CLAIMED IS:

1. An adsorbent having a surface, comprising an apatite which forms at least the surface and its vicinity of the adsorbent and is represented by the formula  $\text{Ca}_{10}(\text{PO}_4)_6((\text{OH})_{1-x}\text{A}_x)_2$ , where A represents a halogen element and  $0 \leq x \leq 1$ , and a trivalent metal ion bonded to a phosphate group contained in the apatite.
2. The adsorbent as claimed in claim 1, wherein the trivalent metal ion is  $\text{Fe}^{3+}$ .
3. The adsorbent as claimed in claim 1 or 2, wherein the amount of the trivalent metal ion to be bonded to the apatite is in the range of 0.1 to 100 mg per gram of the apatite.
4. The adsorbent as claimed in any one of claims 1 to 3, which is capable of adsorbing a compound having a phosphate group.
5. The adsorbent as claimed in claim 4, wherein the compound is a phosphorylated protein.
6. The adsorbent as claimed in any one of claims 1 to 5, wherein the A is a fluorine element.
7. The adsorbent as claimed in any one of claims 1 to 6, wherein the "x" in the formula is in the range of 0.3 to 1.
8. An adsorption apparatus comprising a column which has an adsorbent filling space filled with the adsorbent claimed in any one of claims 1 to 7.

9. The adsorption apparatus as claimed in claim 8, wherein the adsorbent filling space is substantially fully filled with the adsorbent.

10. The adsorption apparatus as claimed in claim 8 or 9, wherein all the adsorbent contained in the adsorbent filling space has substantially the same composition.

11. The adsorption apparatus as claimed in any one of claims 8 to 10, wherein the adsorbent has a particulate form.

12. The adsorption apparatus as claimed in claim 11, wherein the average particle size of particles of the adsorbent is in the range of 0.5 to 100  $\mu\text{m}$ .

13. A method for manufacturing an adsorption apparatus, wherein a solution containing a trivalent metal ion is passed through an adsorbent filling space of a column filled with an apatite represented by the formula  $\text{Ca}_{10}(\text{PO}_4)_6((\text{OH})_{1-x}\text{A}_x)_2$ , where A represents a halogen element and  $0 \leq x \leq 1$ , so that a phosphate group contained in the apatite is bonded to the trivalent metal ion.

14. The method for manufacturing an adsorption apparatus as claimed in claim 13, wherein the amount of the trivalent metal ion contained in 1 L of the solution is in the range of 1 to 50 mol per 1 mol of the apatite.

15. The method for manufacturing an adsorption apparatus as

claimed in claim 13 or 14, wherein the total amount of the solution containing the trivalent metal ion to be passed through the adsorbent filling space is in the range of 1 to 50 mL.

16. The method for manufacturing an adsorption apparatus as claimed in any one of claims 13 to 15, wherein the flow rate of the solution containing the trivalent metal ion is in the range of 0.1 to 10 mL/min.